NOAA Teacher at Sea
Mike Laird
Onboard NOAA Ship RAINIER
July 24 - August 13, 2005

Log 3

Day 4: Thursday, July 28
Time: 13:00
Latitude: 55° 53.3' N
Longitude: 158° 58.4' W
Visibility: 10 nautical miles (nm)
Wind Direction: Light Airs
Wind Speed: Light Airs
Sea Wave Height: 0'
Swell Wave Height: 0'
Sea Water Temperature: 12.2° C
Sea Level Pressure: 1013.5 mb
Cloud Cover: Sky 8/8 covered; Lower-level: cumulus, stratocumulus
Mid-level: altostratus

Science and Technology Log

Another beautiful day in the Gulf of Alaska – partially cloudy with lots of sun! Today I remained aboard the RAINIER and had an opportunity to talk with Ensign Olivia Hauser about the map sheets. The sheets are prepared to guide the launches on their echo sounding runs. The whole area to be mapped on this leg of the mission is subdivided into zones called sheets. At the beginning of the workday, each launch is assigned a sheet for the crew to follow for that day. However prior to distribution to the launch crews, the sheets must be developed.

Each sheet (there are six sheets for our current assignment) is the responsibility of a single sheet manager who takes care of the initial preparation of the sheet, sheet revisions, and the beginning phases of data analysis. In developing the sheet, the manager attempts to achieve 100% coverage of the seafloor. This means that the manager attempts to determine the optimum distance between the lines the launch will follow during its sounding runs. In areas like the waters around Mitrofania where there is little or no existing data, the first run of a sheet is a best guess plot. In essence, the launches are conducting reconnaissance runs.

The data collected during these runs, may reveal some error in the initial line plots. One problem is called a "holiday" which is a gap between the lines (unsounded seafloor). This happens when the lines are spaced too far apart for the depth of the water (the water is shallower than expected), and the footprint scanned becomes too narrow leaving a gap between it and the footprint of the neighboring line(s). A second type of problem is excessive noise in the scan results. In reconnaissance work, this is often the result of a

greater than expected water depth in a launch not equipped to handle soundings at that depth. When these types of errors are identified, the sheet manager will revise the sheet plotting a new set of lines to be run. If necessary, a different launch (one with appropriate echo sounding equipment) will be assigned to run the new lines. Once a complete set of good lines is established for a sheet and seafloor data for the entire sheet is collected, initial analysis begins. Computer programs take cast data (conductivity, pressure, and temperature), tide information, GPS readings (corrected for error), data accounting for the pitch and roll of the launch and process the soundings. The result is a first look at the bottom! Subtle changes in shading reveal changes in floor depth and other bottom features. The soundings run by the RA5 launch so far have indicated a mostly flat floor with a few rock outcroppings and small ridges.

Personal Log

The day was fantastic warm and sunny! One of the crew caught a halibut, which the galley cooked--a special treat for dinner tonight!